

2019 SCRA
South Carolina
Research Authority
Annual Report



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SCRA was the first to believe in our vision to transform student learning through robotics and AI. This recent investment from SC Launch, Inc., will enable us to complete the necessary engineering redesign and manufacture of our first commercially ready robots.

Laura Boccanfuso, Ph.D.
Chief Executive Officer
Vän Robotics

”

Cover Images

[Top] Exceptional SC and SCRA announced the formation of the "Exceptional Connections" business-education partnership at a formal event at the SC Governor's mansion with Gov. Henry McMaster, First Lady Peggy McMaster and a learning robot from Vän Robotics. (Photo courtesy of Exceptional SC)

[Middle] A large-scale model of graphene sheets. Clemson University physicists created nanopores in sheets of graphene, then sandwiched them together to increase capacity five-fold. (Photo courtesy of Clemson University)

[Bottom] Vikor Scientific, SCRA's largest tenant at 22 WestEdge, is establishing the first wet lab space in the new life sciences facility. (Photo courtesy of Vikor Scientific)

MISSION: FUELING SOUTH CAROLINA'S INNOVATION ECONOMY

Chartered in 1983 by the State of South Carolina as a public, nonprofit corporation, the South Carolina Research Authority (SCRA) fuels South Carolina's innovation economy by accelerating technology-enabled growth in research, academia, entrepreneurship and industry.

FSI next-generation 3D imaging tools support machine vision solutions for demanding industrial applications. (Photo courtesy of FSI)

FROM THE CHAIRMAN AND EXECUTIVE DIRECTOR

Dear Friends,

Here at the South Carolina Research Authority, we are dedicated not only to fueling near-term growth in the state's innovation economy, but also to devising strategies to drive economic expansion for the long haul.

A year-long process culminated in development of the SCRA Fiscal Year (FY) 2020-2022 Strategic Plan. Based on input from internal and external stakeholders, the plan outlines six major strategies to heighten the long-term sustainability and impact of SCRA activities:

- Continue to build on the success of the SCRA-Academia Strategic Collaboration to stimulate additional economic growth in cooperation with Clemson University (Clemson), Medical University of South Carolina (MUSC), University of South Carolina (UofSC) and many comprehensive universities and technical colleges
- Increase access to capital for South Carolina companies
- Expand recruitment, growth and retention of technology-based companies
- Optimize mission-driven revenue to ensure the sustainability of resources and services
- Cultivate legislative support to advance development priorities
- Drive operational excellence

This plan is paired with an SCRA Growth Strategy designed to amplify support through each stage of the research and commercialization continuum—from the development of translational technologies within the state's academic institutions through company launch, growth and exit.

Other highlights of the past year include:

- Our annual impact on the state's economy of \$694 million
- South Carolina General Assembly passage of legislation signed into law by Gov. McMaster increasing the annual limit on contributions to SCRA's Industry Partnership Fund from \$6 million to \$9 million
- Acquisition of SC Launch, Inc., Portfolio Company, ENGAGE Talent, by Workforce Logiq, a global provider of workforce management software and services
- Execution of a 10-year sublease for 100% of SCRA's 20,000 square feet of laboratory and office space in the new 22 WestEdge facility
- Successful launch of the South Carolina Medical Device Alliance, funded with a multi-institutional grant from the U.S. Economic Development Administration
- SCRA partnership with Rolls-Royce Power Systems/MTU America, Delta Bravo and the South Carolina Manufacturing Extension Partnership (SCMEP) on a Predictive Analytic capability for fracking engine testing

All of these successes have relied on strong partnerships with our Client Companies, resource partners, contributors and other stakeholders, plus the dedication of SCRA staff and board members. Thank you for your ongoing support of our efforts to build new opportunities across the state.

Read on for more details about 2019 accomplishments. We look forward to even greater collaboration and impact in the year to come.

With appreciation,



Don Herriott
Chairman, SCRA Board



Bob Quinn
Executive Director, SCRA

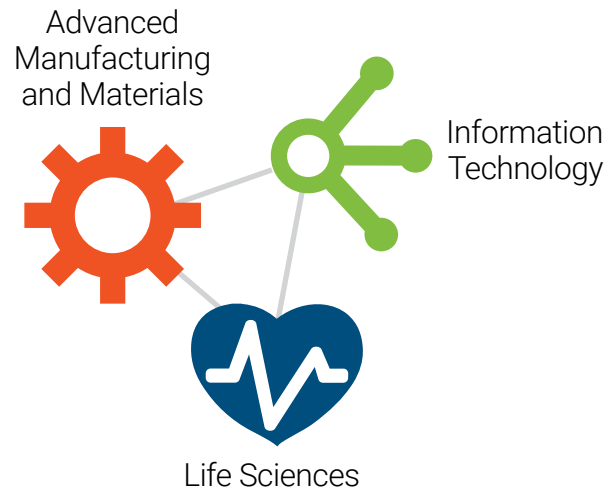
ABOUT US

HIGH-IMPACT TECHNOLOGY SECTORS

SCRA brings together the key players in innovation. By working in close alignment with academic institutions, entrepreneurs and industry, three areas of focus have been defined:

- **Advanced manufacturing and materials**
- **Information technology**
- **Life sciences**

These key sectors align with the strengths of South Carolina's workforce, institutional research and existing companies, and are the drivers of the innovation economy. The intersection of multiple sectors yields the largest potential for innovation and economic growth.



VISION

Our vision is for South Carolina to be a top innovation destination.

VALUES

Innovation

We apply creativity and resourcefulness to the challenges we face.

Collaboration

We cultivate partnerships to achieve our mission.

Integrity

We employ the highest ethical standards, demonstrating honesty, transparency and fairness in every decision and action.

Respect and Trust

We treat each other with dignity and equality to create a culture of inclusion.

Stewardship

We use our resources responsibly.

Courage

We manage risks and do what is right, even in the face of personal or professional adversity.

ACCELERATING TECHNOLOGY-ENABLED GROWTH

ACADEMIA

SCRA is collaborating to advance academic research by working with academic institutions and affiliates to expand research capabilities and commercialize technology.

ENTREPRENEURS

SCRA's entrepreneurial program provides startups with mentoring, access to a network of experts and grants. Companies in the program may also be eligible for investments.

FACILITIES

SCRA offers state-of-the-art facilities for emerging companies and academic institutions. Locations include wet labs, other research infrastructure, offices and collaboration spaces essential to advance technology and attract technology-based companies.

INDUSTRY

SCRA builds strong relationships with established companies and organizations to create new value by connecting industry with innovators. SCRA also helps technology companies relocate to the state.



YEAR IN REVIEW

South Carolina Best Places to Work

For the ninth consecutive year, SCRA was recognized as one of the “Best Places to Work in South Carolina” by the South Carolina Chamber of Commerce.



SCRA Strategic Plan & Growth Strategy

Year-long planning involving a wide array of stakeholders resulted in the SCRA Fiscal Year 2020-2022 Strategic Plan and SCRA Growth Strategy. The plan identifies priorities for growth of SCRA's strategic collaborations, portfolio of Client Companies, access to capital, legislative support, operational improvements and revenues.

(Photo courtesy of iStock)



Academic-Industry Partnerships at McNair Aerospace Center

In partnership with UofSC, SCRA funded joint projects including a digital healthcare lab with Siemens, a robotics lab with Yaskawa and Nephron Pharmaceuticals, an Internet of Things appliance lab with Samsung and an acoustical and visual inspection artificial intelligence (AI) lab with IBM and Yaskawa.



Joint Clemson, MUSC, SCRA Medical Device Alliance (MDA)

This multi-stakeholder partnership has brought together Clemson, MUSC and SCRA to address unmet clinical needs; accelerate the commercialization of medical technologies; build entrepreneurial capabilities among students, faculty and clinicians; and foster startup formation.

(Photo courtesy of Clemson)



SC Launch Billboard Award for Excellence: Heatworks

Winning a 2018 *TIME Magazine* Best Invention award for its tankless electric water heater and the 2019 Consumer Electronics Show top home appliance prize for its Tetra countertop dishwasher led to Heatworks' receipt of the Billboard Award for excellence in marketing, outreach and commercial recognition. Powered by Ohmic Array Technology, the appliances are 99% energy efficient, save water and do not have metal heating elements that can scale or rust.

(Photo courtesy of Heatworks)





Rolls-Royce, Delta Bravo, SCMEP Collaboration

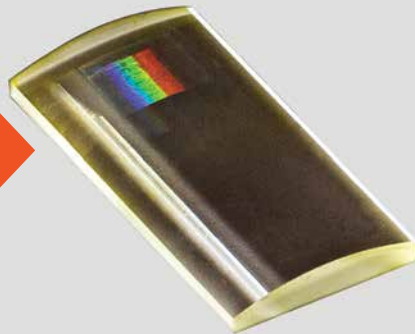
SCRA collaborated with Rolls-Royce Power Systems/MTU America, Delta Bravo and the SCMEP on a predictive analytic capability for fracking engine testing. The technology will be scaled and deployed to multiple engine types at other Rolls-Royce plants.

(Photo courtesy of MTU America Inc.)

CIRTEMO and MagAssemble Merger, Thorlabs Acquisition

CIRTEMO (an SC Launch Client Company) acquired MagAssemble (also an SC Launch Client Company), and was then sold to Thorlabs. The founders remain engaged and the company continues to operate in SC as Thorlabs Spectral Works, an R&D and manufacturing facility for high-precision optical components and sensors.

(Photo courtesy of CIRTEMO)



SC Launch Company of the Year: Proterra

Proterra, an Upstate SC company that employs over 300 people in manufacturing electric buses, was recognized for:

- Raising >\$85M in FY19 for a total of >\$550M in follow-on funding to date
- Establishing a competitive edge with electric buses that offer a travel range exceeding 300 miles per charge
- Securing more than 100 customers across North America
- Displacing more than 55 million pounds of CO₂ emissions for a cleaner environment

(Photo courtesy of Proterra)



Nearly \$1M in SACT Grant Follow-On Funding

An SCRA-Academia Collaboration Team (SACT) Grant provided Clemson University—and the entire region—with state-of-the-art mechanical testing equipment for use in both fundamental and applied research in such advanced materials as plastics, composites, metals and ceramics. Follow-on funding from both federal agencies and industry has totaled \$996,255.

(Photo courtesy of Clemson)



ACADEMIA

SC Academic Innovations

SCRA works directly with academic institutions and affiliate startups, creating opportunities to advance research capabilities and commercialize technology.



Clemson, MUSC and SCRA have joined together to form the Medical Device Alliance to address unmet clinical needs.

COLLABORATING TO ADVANCE ACADEMIC RESEARCH

SCRA fosters collaboration across academic institutions, as well as between academia and industry partners, to advance commercially relevant research. In FY19, SCRA supported academic research through three research alliances: Medical Devices, Technology-Enabled Solutions for Population Health and Industry neXt. SCRA mentoring and support of early-stage academic startups guide them towards follow-on funding and technology commercialization.

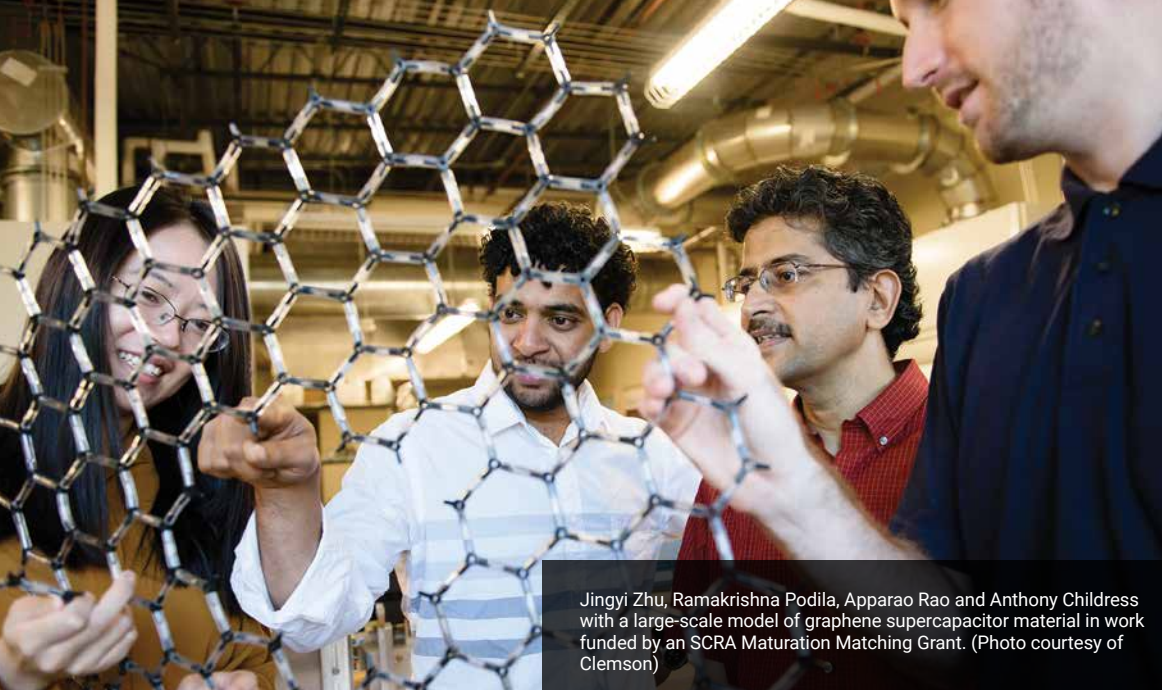
SCRA works directly with academic institutions to expand the impact of institutional funds directly invested in the maturation of technologies or the development of prototypes based on intellectual property owned by the institution. Companies that have been awarded Federal Small Business Innovation Research (SBIR) or Small Business Tech Transfer (STTR) Phase I Grants are eligible for SCRA's SBIR/STTR Matching Grant funds. These highly competitive grants enable startups to complete crucial projects and position themselves as strong candidates for Federal Phase II SBIR and STTR Grants. The Academic Startup Assistance Program (ASAP) provides seed funding to generate preliminary data and achieve commercially relevant milestones to attract subsequent funding.

“

[SCRA funding] has enabled the State of South Carolina to have state-of-the-art equipment dedicated to the research and advancement of composites and lightweight technologies... creating an impact not just on my own research, but across any materials testing study as desired by researchers across the state and beyond.

Dr. Srikanth Pilla
Clemson University

”



Jingyi Zhu, Ramakrishna Podila, Apparao Rao and Anthony Childress with a large-scale model of graphene supercapacitor material in work funded by an SCRA Maturation Matching Grant. (Photo courtesy of Clemson)

FY19 highlights of these programs include:

Smart Autonomous Manufacturing Control Systems

With an SACT Industry neXt Grant, Dr. Ramy Harik of UofSC is creating a Future Factory (FF) Platform lab at the McNair Aerospace Center to accelerate training, testing and validation of smart autonomous manufacturing control systems. The FF lab will expand the resources available to industry and students across the state. This collaboration involves Midlands Technical College and three industry partners.

Enhanced Nanotube-Coated Electronics for Power Tool Supercapacitors

Nanostructured carbon materials, or nanocarbons, are widely used in high-power supercapacitors due to their excellent structural properties, chemical stability and conductivity. With a Maturation Matching Grant to supplement his Maturation Award from Clemson, Dr. Apparao Rao is further enhancing

the performance of carbon nanotube-coated electrodes for supercapacitors used in powering drills, impact wrenches and other power tools. Dr. Rao's breakthrough technology and research results have spurred an additional \$1.15 million in funding.

Medical Imaging of Early-Stage Cervical Cancers

Pensievision, located in coastal South Carolina, is developing groundbreaking three-dimensional medical imaging technologies for early-stage detection and analysis of cervical cancers. Funds from an SBIR/STTR Matching Grant are helping to demonstrate the technology's potential as a low-cost, portable solution capable of reaching populations in resource-constrained settings. This grant will help address critical gaps needed to obtain future Federal Phase II funding.

ACADEMIC INNOVATIONS BY THE NUMBERS

\$10.7M

SCRA funding to support academic research, startups and infrastructure FY14-FY19

54

Number of academically affiliated companies currently supported by SCRA

\$15.5M

Three-year follow-on funding (FY17-FY19) for grant awardees

22

Number of awards to academic institutions and academic startups in FY19

Success Stories

Innovative Neonatal Feeding System

The Neonatal Feeding System was created by researchers at MUSC to reinforce a baby's own natural instinct to feed, and to aid premature and vulnerable babies in acquiring this invaluable skill. If a baby is unable to quickly grasp feeding behaviors, invasive surgery that directs food into the stomach through the belly is required. With the new intelligent device, infants' own feeding efforts are reinforced, helping them learn to coordinate the natural feeding sequence of sucking, swallowing and breathing. It also alleviates scheduling conflicts and costs inherent in the current method of one-on-one occupational therapist sessions.

The inventors, Dr. Bashar Badran and Dr. Dorothea Jenkins, developed the device with the goal of allowing parents to administer these feeding sessions, either in the hospital or the comfort of their homes. It is anticipated that this technology will lead to shorter hospital stays, lower medical costs and improved overall health of South Carolina's tiniest patients. This technology is one of three that the multidisciplinary academic teams and seasoned industry experts of the SC MDA are advancing to achieve commercial viability. Results will be presented in Spring 2020.



Jayne Johnson (left) feeds her daughter, Emaree Haskell, who is connected to the neonatal feeding system controlled by Dorothea D. Jenkins, M.D. (right). (Photo courtesy of MUSC)

FUNDING FOR ACADEMIC RESEARCHERS



SACT Grants Up to \$100K

- Who:** Collaborative multidisciplinary teams involving SC academic institutions and industry
- When:** Request for applications (RFAs) released yearly
- Why:** To form research alliances between academia and industry to grow South Carolina's economy



Maturation and Prototyping Matching Grants Up to \$15K

- Who:** SC public institutions of higher education
- When:** RFAs released yearly
- Why:** To augment an academic institution's maturation funds and expand development of technologies based on university intellectual property

Increased Crop Yields and Profitability with Carolina Seed Systems

Carolina Seed Systems (CSS) LLC, a Clemson startup company, has developed proprietary sorghum varieties optimized for growth in the Southeast region. Sorghum presents a cost-effective, yet nutritionally identical, alternative to corn, while also demanding less water and nitrogen for cultivation. Varieties currently on the market are poorly adapted to Southeast growing conditions, resulting in subpar crop yields. Dr. Zachary Brenton and Dr. Richard Boyles addressed this problem with locally adapted sorghum seed that outperforms competing brands in both yield and profitability. CSS sorghum can meet or exceed dryland corn yields at 30% of the seed cost, improving farmer profitability by \$50 per acre.

The company has relocated from the Upstate to the Pee Dee region to be closer to their end-users. With funds provided by an SCRA ASAP Grant, CSS has been able to scale seed

production to enable large-volume production within the state. The company has attracted \$820,000 in follow-on funding from Advanced Research Projects Agency-Energy (ARPA-E), a division of the U.S. Department of Energy that helps energy innovations overcome technological development barriers.



Sorghum growing in a field. (Photo courtesy of CSS)



SBIR/STTR Matching Grants Up to \$50K

Who: Federal Phase I awardees
When: On a rolling basis
Why: To address critical gaps to obtaining Federal Phase II funding



ASAP Grants Up to \$25K

Who: Academic startups
When: On a rolling basis
Why: To develop technology and further research efforts from academic intellectual property

ENTREPRENEURS

SC Launch and SC Launch, Inc.

SC Launch provides startups with entrepreneurship mentoring, as well as access to a network of business experts, advisors, investors and possible grant support. Companies also may be eligible for an investment from SC Launch, Inc.



SCRA Executive Director Bob Quinn (left) and South Carolina Lieutenant Governor Pamela Evette (right) at the 2019 SC Launch Summit.

SUPPORTING STARTUPS THROUGH SC LAUNCH

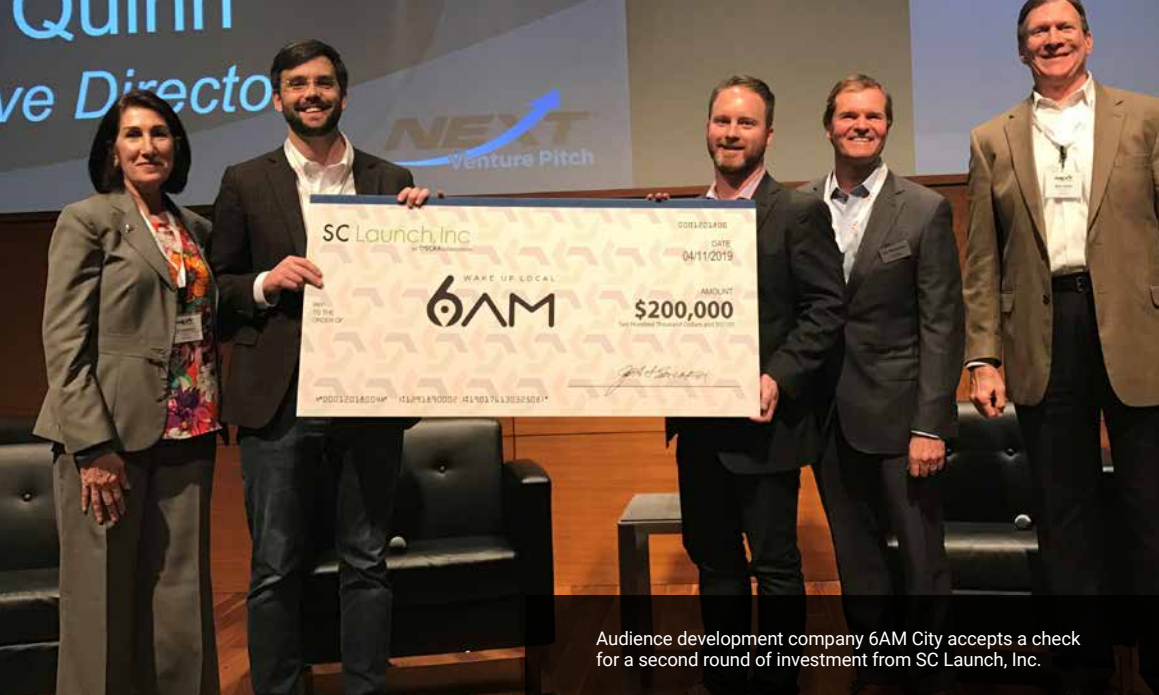
Fifteen companies were approved for awards by SCRA's investment affiliate, SC Launch, Inc., in FY19, 13 of which were funded for a total of \$2.3 million in direct investments. SC Launch, Inc., piloted its first revenue-based/royalty-based investment in an SC Launch Client Company, Ellipsis, an Upstate IT company advancing internet security. Nine Project Development Fund Grants and 16 Acceleration Grants were approved. The program exceeded its FY19 follow-on funding target of \$90 million by more than 50%, with a fiscal year-end total of \$136 million.

“

SC Launch was the very first organization to invest in Recovr. We are proud to grow our partnership with SCRA and demonstrate what technology companies can achieve right here in South Carolina.

Austen Hayes, CEO
Recovr

”



Audience development company 6AM City accepts a check for a second round of investment from SC Launch, Inc.

SCRA established and convened the first meeting of the South Carolina Business Incubator Association (SCBIA) at the third annual SC Launch Summit in May 2019. The purpose of SCBIA is to advance entrepreneurship and small business development statewide through this incubator, accelerator and co-working association of professionals who provide resources, ideas, leadership and best practice exchange for the state's innovation economy.

SC LAUNCH BY THE NUMBERS

180

Total number of SC Launch Client Companies

\$49.6M

Total amount of grants and investments to SC Launch Client Companies since inception

**182,048
SQUARE
FEET**

Amount of space occupied by SC Launch companies across the state

Success Stories

ENGAGE Talent Workforce Intelligence

ENGAGE Talent offers the first Total Talent Intelligence™ platform that accurately assesses the impact of people on business performance. ENGAGE combines AI predictive models with data from 40,000 external sources to deliver the most holistic and validated talent intelligence worldwide. Market-leading companies depend on ENGAGE to improve talent acquisition, candidate engagement, competitive intelligence and labor market analytics.

In the last four years, the company has received two investments totaling just over \$287,000 from SC Launch, Inc. This year, ENGAGE was recognized as the “Most Interesting



The investment and resources we received from SC Launch enabled us to scale at a pivotal time for our company. We're incredibly proud of this milestone and are thankful for SCRA's partnership and support.

Joe Hanna, Founder
ENGAGE Talent



AI Company in HR Technology” by HR Examiner. In October 2019, ENGAGE was acquired by Workforce Logiq, a global provider of workforce management software and services to large corporations. This acquisition will equip Workforce Logiq customers with proprietary benchmarks in real-time intelligence to more quickly and affordably find, engage, hire and retain top candidates. ENGAGE will continue to operate out of Charleston.



FUNDING FOR ENTREPRENEURS



Acceleration Grants Up to \$50K

Who: SC Launch Client Companies
When: On a rolling basis
Why: To progress a company toward commercialization and better position it for an SC Launch, Inc., investment



Project Development Fund Grants Up to \$25K

Who: SC Launch Client Companies
When: On a rolling basis
Why: To assist a startup in achieving critical milestones to commercialization

Boost to Fan Experiences and Revenues with BandwagonFanClub, Inc.

Bandwagon is a fan identity and attendee analytics company that helps event organizers (sports teams, festivals, etc.) curate their marketing, products and services. Their proprietary platform's permission-only blockchain allows stakeholders to collaborate in a distributed ledger to create profiles of fans to elevate their day-of-event experience, increase revenues, improve public safety and curb ticket fraud. The company's goal is to become the global validator of ticketed live events.

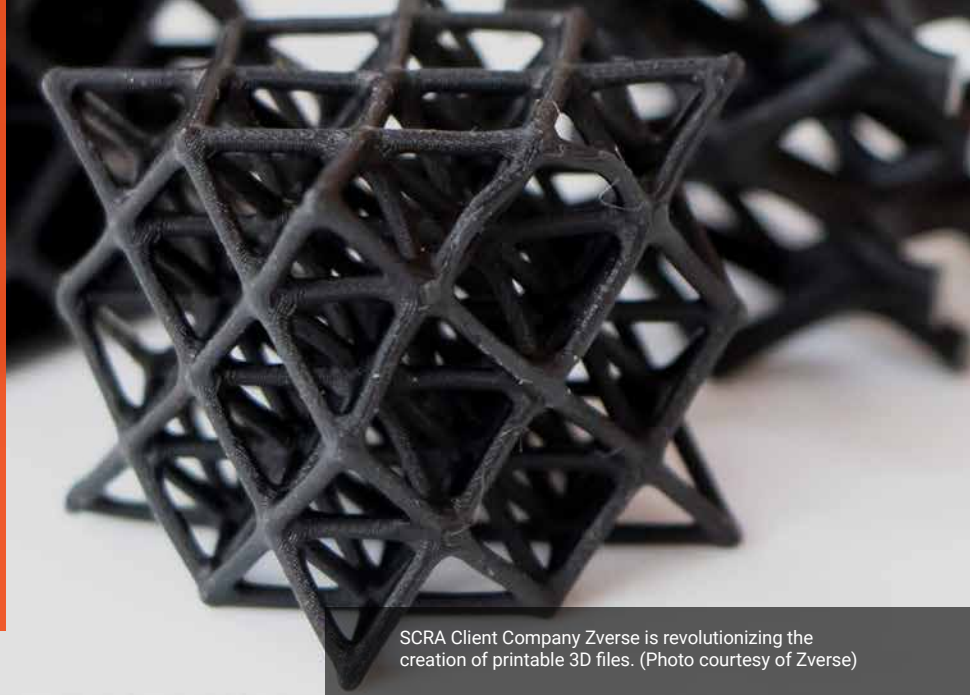
Bandwagon has received two grants totaling \$60,000 from SCRA, in the form of a Project Development Fund Grant and an Acceleration Grant, to improve platform security and broaden marketing efforts. This year, the company also received an SC Launch, Inc., equity investment of \$200,000. Additionally, the company has secured investments of more than \$2 million from sources such as Backstage Capital, Realist Ventures, Capital Factory and Global Alliance for SC.



Bandwagon Founder and CEO Harold Hughes shares the company's latest fan engagement insights with users. (Photo courtesy of BandwagonFanClub)

INDUSTRY SC Ventures

SCRA partners with corporations to meet industry technology needs through the identification and co-funding of research projects involving small companies and/or academic institutions. SC Ventures also teams with venture capital and angel investors to co-fund early-stage South Carolina technology companies through SC Launch, Inc.



SCRA Client Company Zverse is revolutionizing the creation of printable 3D files. (Photo courtesy of Zverse)

SOLVING INDUSTRY CHALLENGES AND ACCELERATING GROWTH

The SCRA team engages industry leaders to understand their technical needs and their unique visions for success, enlisting stakeholders in the entrepreneurial and academic communities to identify potential technology-based solutions.

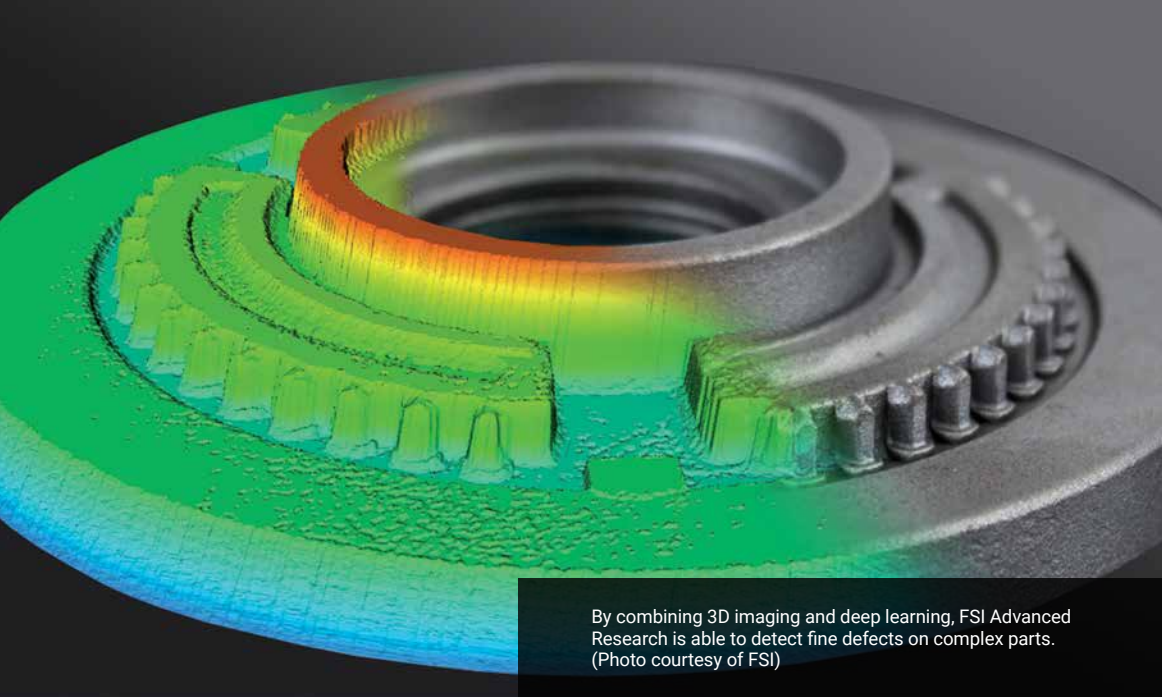
In FY19, SC Ventures partnered with South Carolina corporations to sponsor 13 projects with the potential to advance technology-based products and services and solve industry needs. SC Ventures provided \$474,000 in funding, which was matched by \$633,000 of funding from corporate partners. Across the state, this has resulted in more competitive corporations, accelerated growth among small South Carolina technology companies and new research capabilities at academic institutions.

“

Being an SCRA and SC Launch Client Company has helped us hone our business plan and organize our company. SCRA's core competencies...align perfectly with our go-to-market strategies.

Philip Riddle, CEO
SeeDaten

”



By combining 3D imaging and deep learning, FSI Advanced Research is able to detect fine defects on complex parts. (Photo courtesy of FSI)

SC VENTURES BY THE NUMBERS

\$474K

SC Ventures funding awarded for FY19

\$633K

Matching commitments from industry partners for FY19

58

New jobs forecast FY19-FY21

IDENTIFY INDUSTRY NEEDS

SCRA works with industry partners to understand their capabilities and needs.



FIND PARTNERS

To meet industry needs, SCRA works with academic researchers and/or entrepreneurial companies to develop technical solutions.



R&D
EFFORTS

HIGH-TECH
SOLUTIONS

STRATEGIC
PARTNERSHIPS

Success Stories

SeeDaten Training Tools for a Skilled Workforce

As industries embrace advanced technologies, they must establish a workforce with new skill sets. SC Ventures partnered with SeeDaten, Spartanburg Community College (SCC) and Milliken & Company to deploy SeeDaten's reality, augmented reality and mixed reality technologies and equip students with foundational skills, training and tools for the manufacturing and healthcare industries.

At Milliken & Company, SeeDaten's reality technologies are being deployed to document process steps in textile weaving operations, reduce on-the-job training time, improve quality and enhance safety.

SCRA's Demonstration Grant and matching funds from SCC and Milliken made it possible for students from SCC School of Health Sciences-Nursing and School for Advanced Manufacturing and Industrial Technologies to benefit from cutting-edge SeeDaten technology, learning new processes

and clinical procedures on platforms such as mobile devices. Using interactive approaches with immediate feedback help ensure the consistency of instruction and trains the next generation of workers to deliver quality results.

As an outcome of SeeDaten's success in the SCC School of Nursing, Spartanburg Regional Healthcare System (SRHS) partnered with SCRA to co-fund a Demonstration Grant to deploy SeeDaten reality technologies with SRHS nurses and clinicians.

With these successful projects, SCRA has helped a new South Carolina company demonstrate its technological capabilities to industry partners by lowering technical and business risks. These new opportunities have made it possible for SeeDaten to expand—hiring a SCC Computer Technologies graduate, with plans for additional SC hires and business expansion.



Contec Healthcare's Protection from Hazardous Drug Exposure

Contec Inc., an Upstate South Carolina global supplier of cleaner and disinfectant chemicals and textiles, sought to expand market penetration within the pharmaceutical hygiene sector by responding to new USP standards for protection of healthcare personnel from exposure to drugs classified as hazardous by the National Institute for Occupational Safety and Health (NIOSH). While Contec required detailed understanding of the mode, effectiveness and by-products produced by its Peridox® oxidizing sporicidal disinfectant, the company had difficulty locating technical experts able to provide the urgently needed answers.

SCRA met with Contec researchers to understand its scientific needs and mobilize a statewide network of scientists and industry experts. SCRA provided matching research funds and identified organic chemists, analytical chemists and molecular modeling experts with the resources to address the NIOSH compliance challenges.

A South Carolina “dream team” was assembled, comprised of three university professors, two small companies (Parimer Scientific and Aconabolics) and two universities (MUSC and Furman University). The results have advanced Contec’s scientific leadership, promoted the importance of small businesses to the overall industry and provided the basis for multiple scientific publications, which benefit all partners.



Contec's PeridoxRTU® cleaner and disinfectant is used for disinfection and decontamination processes associated with USP regulations. (Photo courtesy of Contec)

FUNDING OPPORTUNITIES



Demonstration Grants Various Amounts

- Who:** Early-stage companies and/or SC academic institutions
- When:** On a rolling basis
- Why:** Solve industry technical needs and accelerate growth of small companies



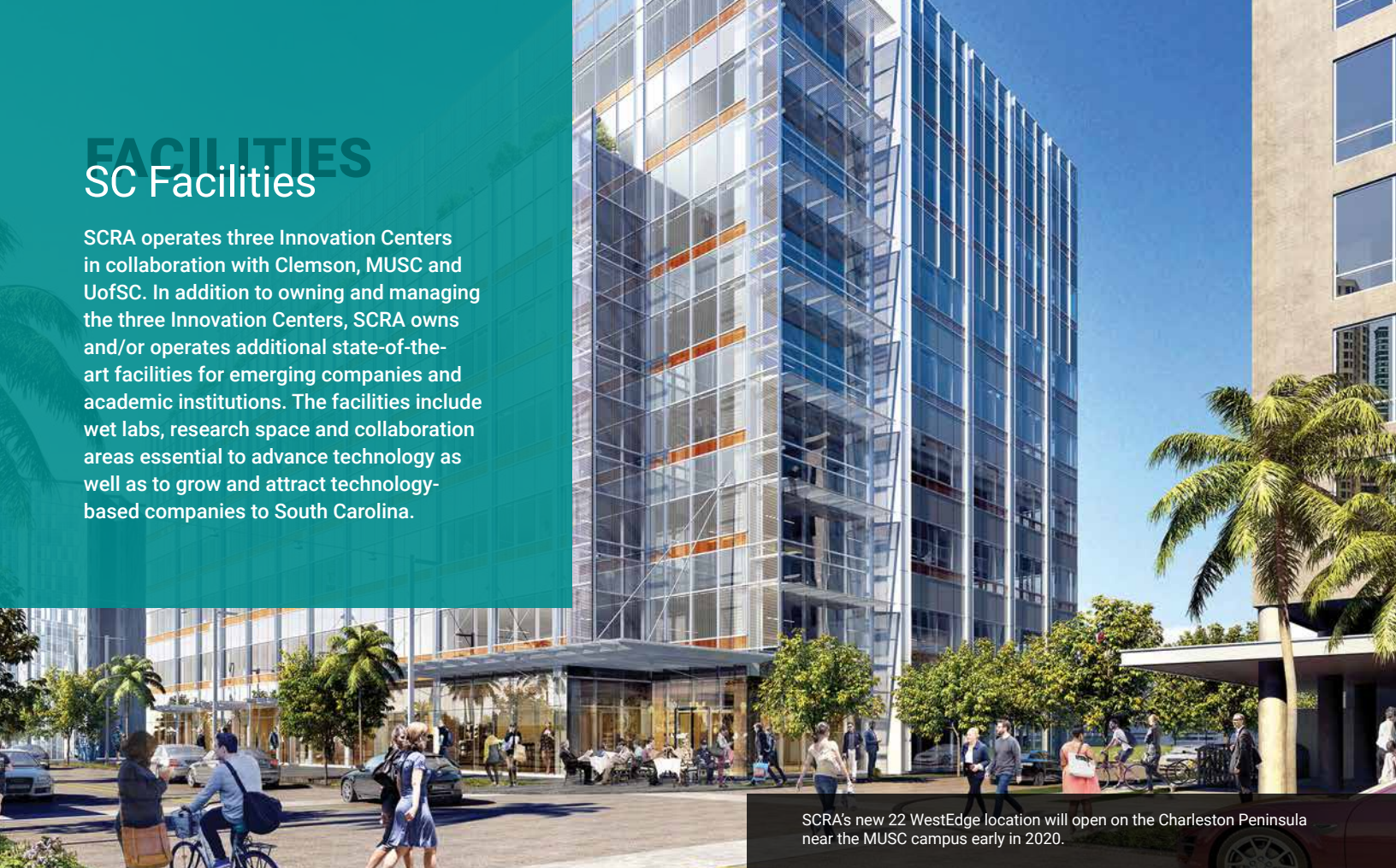
Relocation Grants Various Amounts

- Who:** Technology companies interested in relocating to South Carolina
- When:** On a rolling basis
- Why:** Attract companies capable of creating high-paying technology jobs in SC

FACILITIES

SC Facilities

SCRA operates three Innovation Centers in collaboration with Clemson, MUSC and UofSC. In addition to owning and managing the three Innovation Centers, SCRA owns and/or operates additional state-of-the-art facilities for emerging companies and academic institutions. The facilities include wet labs, research space and collaboration areas essential to advance technology as well as to grow and attract technology-based companies to South Carolina.



SCRA's new 22 WestEdge location will open on the Charleston Peninsula near the MUSC campus early in 2020.

FACILITIES BY THE NUMBERS

>1.3M SQ FT

Total research, collaborative lab space and office areas owned and/or managed by SCRA

50

Number of companies located in SCRA facilities

20K

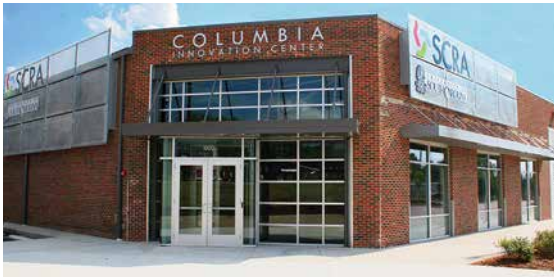
Square feet of space leased by SCRA at 22 WestEdge



APPLIED TECHNOLOGIES CENTER

SUMMERVILLE, SC

SCRA Applied Technologies Center in Summerville is a 10-acre facility at the junction of Exit 199 off I-26 and Highway 17-A. The property houses SCRA and Advanced Technologies International (ATI), Inc., employees.



UOFSC/COLUMBIA INNOVATION CENTER

COLUMBIA, SC

Designed to accommodate business offices and clean, next-generation manufacturing research operations, UofSC's McNair Aeronautics Center and EngenuitySC are some of the tenants co-located with SCRA operations in this facility.



DUKE ENERGY INNOVATION CENTER

ANDERSON, SC

This center is a LEED Gold-certified "green" facility developed in partnership with Clemson and Duke Energy. Tenants include Clemson researchers as well as academic startups.



MUSC INNOVATION CENTER

CHARLESTON, SC

This Innovation Center has Biosafety Level II Laboratories to support medical and bioscience research and commercialization.

Success Stories

100% Occupancy at 22 WestEdge

SCRA's newest location, 22 WestEdge, is situated on the Charleston Peninsula adjacent to the MUSC campus. In partnership with the City of Charleston, MUSC and others, SCRA has succeeded in its strategy to attract large life science companies and use the space for collaborative, market-driven research and commercialization. The new office and research facility is expected to be operational in early 2020.

SCRA has leased the entire 16,000 square feet of the building's eighth floor for use as wet labs and offices for molecular diagnostics. An additional 4,000 square feet of

the fourth floor will become a customer service and logistics center to support Vikor Scientific business operations. All of the SCRA space is currently being custom designed and outfitted to support Vikor Scientific, a company specializing in infectious disease and oncology testing.

The life sciences sector has an \$11.4 billion annual impact on South Carolina, employing more than 15,000 people with an average annual salary of more than \$79,000. 22 WestEdge is a key component of the new Discovery District in Charleston and a pivotal addition to technology facilities statewide.



Laboratory space at the new 22 WestEdge facility.
(Rendering courtesy of Garvin Design Group)

Lights Powered by the Sun and Wind in Carolina Research Parks

SCRA has managed the Carolina Research Park in Columbia since the park's inception in 1983. The park's market-driven master plan concept allows SCRA to offer various sizes and parcels of land to accommodate the varying needs of technology companies. Past and current tenants have participated in bringing new technologies and jobs to the state.

SCRA has partnered with CoLite Technologies and Johnson Control Security Solutions (JCSS) to phase in the replacement of standard streetlights with completely off-grid systems. The energy-saving, long-life, light-emitting diode fixtures are powered by smart photovoltaic solar panels and wind turbines designed and manufactured by Carolina Research Park's tenant CoLight Technologies. A lithium phosphate system stores surplus energy from renewables for later use, and a control module optimizes charging cycles for the system.

It is anticipated that this innovative system will deliver electricity cost savings of approximately \$100,000 in its lifetime. Other expenses will be cut through the elimination of typical maintenance requirements, such as rewiring or trenching. It is projected that the system will alleviate production of more than 186 metric tons of carbon emissions in the course of 20 years of its operation.

In the next phase of the project, JCSS internet protocol multi-image megapixel cameras will be added to light poles to enable remote monitoring of the main travel arteries throughout the park.



Standard streetlights are being replaced with solar- and wind-powered fixtures. (Photo courtesy of CoLite Technologies)

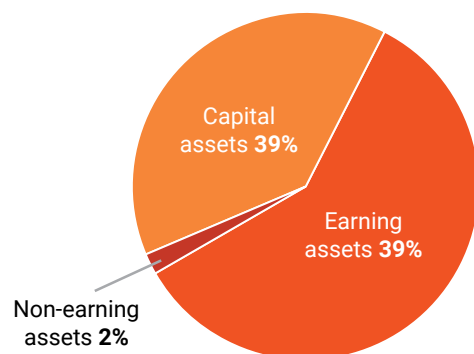
FINANCIALS



Statements of Financial Position as of June 30, 2019 and 2018

As a public, nonprofit organization, SCRA provides detailed reporting on all financials. The following is a summary of SCRA's financial position for end of FY19 and FY18.

SCRA Asset Mix



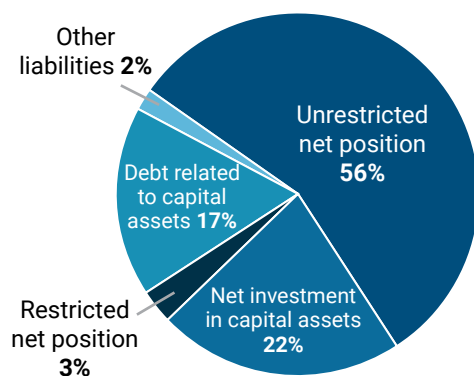
ASSETS

	FY19	FY18
Non-Earning Assets	1,550	6,498
Earning Assets	49,582	45,040
Capital Assets	32,923	33,944
Total Assets	84,055	85,482

(dollars in thousands)

Effective balance sheet management was a focus in FY19. Non-earning assets fell 76%, while earning assets increased 10%.

SCRA Resources Mix



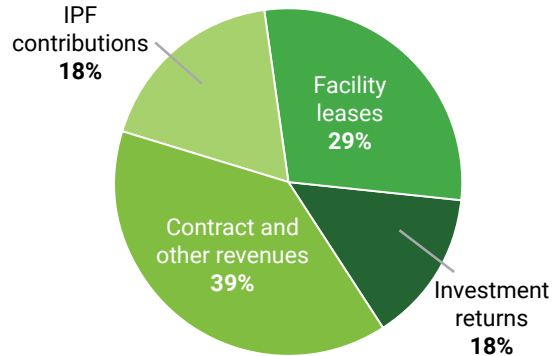
RESOURCES

	FY19	FY18
Debt Related to Capital Assets	14,292	15,200
Other Liabilities	1,387	1,194
Unrestricted Net Position	46,736	44,846
Net Investment in Capital Assets	18,631	18,744
Restricted Net Position	3,009	5,498
Total Resources	84,055	85,482

(dollars in thousands)

In FY19, the unrestricted net position of SCRA increased 4%, while debt related to capital assets declined 6%, and the restricted net position was 45% lower.

FY19 Revenue Sources



REVENUE SOURCES

	FY19	FY18
IPF Contributions	2,182	6,000
Facility Leases	3,607	3,092
Investment Returns	1,656	1,404
Contract and Other Revenues	4,805	2,383
Total Revenues	12,250	12,879

(dollars in thousands)

SCRA fulfills its mission of fueling the innovation economy of South Carolina by prudently deploying the resources made available through contributions to the Industry Partnership Fund (IPF), revenue from facility leases, returns generated from investments, and contract and other revenues. Revenue mix in FY19 shifted dramatically compared to FY18, as new tax regulations reduced the tax incentive for individuals to contribute to the IPF. Maintenance of high occupancy rates in SCRA facilities and effective investment portfolio management provided revenue lift in FY19, as did other revenue related to the FY17 sale of ATI.

IPF DONORS

SCRA thanks the organizations below for contributing to the IPF at the following levels:

Diamond - \$200,000+

- Comporium Inc.
- Dominion Energy
- Evening Post Industries
- Home Telecom
- SC Blue Cross Blue Shield

Platinum - \$150,000-\$199,999

- Coastal Fertility Specialists, LLC

Bronze - \$10,000-\$49,999

- BDO
- JE Burns Holding Inc.
- McCay, Kiddy & Assoc., LLC
- Sangita & Patrick Shirley
- Swenson & Associates, PA

(as of November 30, 2019)

LEADERSHIP

SCRA Board of Trustees

Executive Committee

The SCRA Board of Trustees' Executive Committee is comprised of the presidents of Clemson University, the Medical University of South Carolina and the University of South Carolina; the South Carolina governor or designee (to serve as Chairman); an additional appointee of the governor; the chairman of the South Carolina House Ways and Means Committee or designee; the chairman of the South Carolina Senate Finance Committee or designee; and two additional members.



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Entrepreneur and Business Owner



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Senator, South Carolina Senate
Attorney, Setzler & Scott, P.A.



Dr. James P. Clements
President
Clemson University



Mr. Jonathan M. Zucker
President
The InterTech Group

“

SCRA has played a key role in bringing an important tool for healthcare providers to market. Their investment allowed us to scale to a national level and to begin working with healthcare systems in several states.

John Holmes, Managing Partner
SimpliPhy

”

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Chair, Council of College Presidents

Dr. Keith Y. Shah
Senior Vice President
Optum, Inc.

Ms. Sue-Ann (Susie) Shannon
President and CEO
South Carolina Council on
Competitiveness

Mr. David M. Smalls
Legislative Director
Colleton County
Legislative Delegation

“Our decision to relocate all technical development to Charleston, SC, was an easy one thanks to the tremendous support we have received from the great people at the Charleston Regional Development Alliance, SCRA, Charleston County and many others.”

Patrick McCollum, Chairman
DeepBD, Inc.

SC Launch, Inc., Board of Trustees

SC Launch, Inc., an independent, nonprofit corporation affiliated with SCRA, provides investments to selected South Carolina-based companies participating in SCRA's entrepreneurial programs, SC Launch and SC Ventures. The SC Launch, Inc., Board of Directors, consisting of nine members, approves all investments.



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SC Launch, Inc., Board Chairman
CFO
Michelin North America, Inc.



Dr. W. Patrick Springhart
Physician
Prisma Health



Ms. Andrea Marshall, J.D.
SC Launch, Inc., Board Vice Chairman
Innovation Center Director,
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Genus Oncology, LLC



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Former VP for Business and Marketing
Development, Sweetwater Energy



Ms. Patti Leahy
Vice President of Transformation
Benefitfocus



Stephen K. Wiggins
Retired
Former CIO, BlueCross BlueShield of
South Carolina



Ms. Natalie Ruggiero
Financial Consultant
Former Market President, BB&T

“

This funding truly furthers SENTIO's mission to make hiring assessments available to companies of all sizes. With the help of SCRA, we can now bring those benefits to businesses on a national scale.

AJ Richichi, CEO
SENITO

”

SCRA Staff Leadership

Dr. Nadim Aziz

Director, South Carolina Established Program to Stimulate Competitive Research (SC EPSCoR)

Ms. Yolanda Lewis

Director, Human Resources

Mr. Randy Cutts

Director, SC Facilities

Mr. John Sircy, CPA, CMA, CFM, CSCA

Director, Finance and Administration

Ms. Christine Dixon Thiesing

Director, SC Academic Innovations

Ms. Jill Sorensen, J.D.

Director, SC Launch

Mr. Cole Dudley

Director, SC Ventures

“

Global Transplant Solutions is proud to partner with SCRA and the SC Launch Program as we build our commercial business and further develop our proprietary hypothermia-inducing organ procurement product PerfeXslush™. We look forward to future collaborations and expanding our footprint in South Carolina.

John Bruens, CEO
Global Transplant Solutions

”

FY19 IMPACT METRICS



\$694.38M

SCRA FY19 ECONOMIC IMPACT

SCRA's impact on the South Carolina innovation economy was \$694,383,897 in FY19. The innovation economy is defined as an economic environment that facilitates the production of ideas, knowledge and information.

\$1.14B CAPITAL

SC Launch companies have received a total of \$1,141,975,684 in follow-on funding since the program's inception in 2006, with \$135,830,705 received in FY19 alone. Follow-on-funding is investment capital a company has received after initial financial support from SCRA.

\$2.77M GRANTS

SCRA awarded \$2,770,455 in funds for SC Academic Innovations, SC Launch and SC Ventures grants in FY19. Grants help advance research capabilities, commercialize technology, expand product offerings, fund relocation costs and more.



75% IN REVENUE



75% of all SC Launch Client Companies brought in revenue in FY19.



23% FEMALE 77% MALE

Women serve as CEOs of 23% of the companies in which SC Launch, Inc., invested in FY19, which matches leadership demographics of more than 900 startups across North America as reported by the Angel Capital Association.

2.5X EMPLOYMENT MULTIPLIER

For every 10 jobs supported by SCRA, an additional 15 jobs are created elsewhere.

2.9% EMPLOYMENT GROWTH

South Carolina's employment in sectors defined as the innovation economy—including those sectors championed by SCRA—grew at a rate of 2.9%, close to double that of the state overall (1.6%).

4.14K JOBS

SCRA operations and programs supported 4,141 South Carolina-based jobs in FY19.



\$71.43K SALARY

The \$71,413 average salary of companies in the SC Launch Program is 67% higher than the average state salary of \$42,567.

>1.3M SQUARE FEET

SCRA owns and/or manages more than 1.3 million square feet of research, lab, collaboration and office space.



FUELING
SOUTH CAROLINA'S
INNOVATION ECONOMY



SOUTH CAROLINA
RESEARCH AUTHORITY

www.scra.org